SYSTEM AND METHOD FOR NON-CASUAL CHANNEL EQUALIZATION

ABSTRACT OF THE INVENTION

A system and method are provided for non-casual channel equalization in a communications system. The method comprises: establishing a first threshold (V1) to distinguish a high probability "1" first bit estimate; establishing a second threshold (V0) to distinguish a high probability "0" first bit estimate; establishing a third threshold (Vopt) to distinguish first bit estimates between the first and second thresholds; receiving a non-return to zero (NRZ) data stream; comparing the first bit estimate in the data stream to a second bit value received prior to the first bit; comparing the first bit estimate to a third bit value received subsequent to the first bit; in response to the comparisons, determining the value of the first bit. Establishing a third threshold (Vopt) includes: distinguishing NRZ data stream inputs below the first threshold and above the third threshold as a "0" if both the second and third bits are "1" values, and as a "1" if only one of the second and third values is a "1", or if both the second and third bit values are a "0"; and, distinguishing NRZ data stream inputs above the second threshold and below the third threshold as a "1" if both the second and third bits are a "0" value, and as a "0" if only one of the second and third values is a "0", or if both the second and third bit values are a "1". The method further comprises: following the determination of the first bit values, FEC decoding the first bit values; and, using the FEC corrections of the first bit values to adjust the first, second, and third threshold values. Alternately, an averaging process is used to maintain the threshold values.